

**Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services**

STATEMENT OF BASIS

**Hydrofining Unit (HULA)
ExxonMobil Refining and Supply Company
East Baton Rouge, East Baton Rouge Parish, Louisiana
Agency Interest Number: 2638
Activity Number: PER20070016
Draft Permit 3060-V0**

I. APPLICANT:

Company:

ExxonMobil Refining and Supply Company
P.O. Box 551
Baton Rouge, Louisiana 70821

Facility:

Hydrofining Unit (HULA)
4045 Scenic Highway, Baton Rouge, East Baton Rouge Parish, Louisiana
Approximate UTM coordinates are 675.736 kilometers East and 3374.700 kilometers North, Zone 15

II. FACILITY AND CURRENT PERMIT STATUS:

The Baton Rouge Refinery (BRRF) is an existing petroleum refinery. This permit covers the Hydrofining Unit only. BRRF is required by the Environmental Protection Agency (EPA) Phase 2 Nonroad Diesel regulations to reduce the sulfur content of diesel fuel to 15 ppm by mid-2010. To meet this regulation, the Refinery proposes the Clean Diesel Project, which will construct and operate a grassroots Hydrofining Unit (HULA) to remove additional sulfur from diesel bendstocks. This is the initial permit for the facility.

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Several Part 70 permits addressing portions of the facility have already been issued. These include:

Permit #	Units or Sources	Date Issued
3120-00056-V1	Anchorage Tank Farm	02/18/2004
2385-V3	Catalytic Cracking Complex	02/17/2007
2589-V3	Light Ends	04/11/2006
2176-V3	Low Sulfur Gasoline	04/11/2006
2275-V2	Pipestill Complex	10/10/2005
2234-V3	Cokers	04/11/2006
2447-V1	Hydroprocessing	05/18/2006
2296-V2	Light Oils	08/06/2007
2261-V1	Reformer	02/02/2007
2341-V1	Specialties	08/29/2007
2047-V1	Docks	04/11/2006
2363-V1	Water Clarification Unit (WCLA)	01/25/2007
2795-V2	Refinery Tank Farm	01/11/2007
2926-V0	Complex Labs	08/31/2005
2300-V0	Sulfur Plant	03/20/2006

III. PROPOSED PERMIT / PROJECT INFORMATION:

Proposed Permit

ExxonMobil submitted an application and Emission Inventory Questionnaire (EIQ) dated September 26, 2007, requesting a Part 70 initial permit.

A notice requesting public comment on the permit was published in *The Advocate*, Baton Rouge, on <date>, 2007. A copy of the public notice was mailed to concerned citizens listed in the Office of Environmental Services Public Notice Mailing List on <date>. The draft permit was also submitted to US EPA Region VI on <date>. All comments will be considered prior to the final permit decision.

Project description

EPA adopted a comprehensive national program to reduce emissions from nonroad diesel engines by integrating engine and fuel controls as a system to gain the greatest emission reductions. The EPA Clean Diesel Program, specifically Phase 2 of the Clean Air Nonroad Diesel Rule, requires diesel fuel to have a sulfur content no greater than 15 ppm. Phase 2 will become effective in the year 2010.

According to EPA, the Clean Air Nonroad Diesel Rule will change the way diesel engines function to remove emissions and the way diesel fuel is refined to remove

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sulfur. To meet these emissions standards, engine manufacturers will produce new engines with advanced emission-control technologies similar to those already required for highway trucks and buses. Exhaust emissions from these engines will decrease by more than 90 percent. Because the emission-control devices can be damaged by sulfur, EPA has adopted the sulfur limit to decrease the allowable level of sulfur in nonroad diesel fuel by more than 99 percent.

Phase 2 of the Nonroad Diesel regulations will result in reductions of sulfur dioxide (SO₂), particulate matter (PM₁₀), nitrogen oxides (NO_x), volatile organic compounds (VOC), and carbon monoxide (CO) in the five (5) parishes encompassing the Baton Rouge community. These reductions are greater than the emission increases for additional processing equipment for the Clean Diesel Project.

ExxonMobil Refinery Company proposes to construct the HULA unit. This unit will reduce the sulfur content of nonroad diesel from its current limit of 500 ppm to 15 ppm. New emission sources include a process heater, a cooling tower, fugitive emissions from piping components, and catch basins for stormwater runoff.

Hydrogen is heated in a process furnace, then mixed with various blending components of diesel and fed to reactors where desulfurization takes place. Hot effluent from the reactors is cooled and separated into a recycle hydrogen stream, fuel gas, naphtha and product diesel. Fuel gas is treated via amine scrubbing to NSPS quality. Naphtha is sent to other refinery units for further processing. Product diesel components are routed to tankage for blending into the final diesel product. A new cooling tower is planned to provide water for the unit heat exchangers.

Permitted Air Emissions

Estimated emissions from the facility in tons per year are as follows:

Pollutant	Proposed
PM ₁₀	1.90
SO ₂	2.41
NO _x	8.76
CO	17.96
VOC*	11.66

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*VOC LAC 33:III Chapter 51 Toxic

Air Pollutants (TAPs):

<u>Pollutant</u>	<u>Proposed</u>
2,2,4-Trimethylpentane	0.03
Benzene	0.08
Biphenyl	0.03
Cresol	0.03
Cumene	0.04
Ethyl benzene	0.16
n-Hexane	1.36
Quinoline	0.03
Styrene	0.03
Toluene	0.25
Xylenes (mixed isomers)	0.51
Total	2.55

Prevention of Significant Deterioration and Nonattainment Applicability

The Clean Diesel Project will consist of a new process heater, cooling tower, fugitive emissions from new components, and associated increases from existing emission sources as a result of the project. The proposed emissions do not exceed PSD or NNSR thresholds.

Summary of BRRF Emission Changes, Tons per year

Equipment	Pollutant						
	NO_x	SO₂	PM₁₀	CO	VOC	H₂S	H₂SO₄
HULA Unit							
HULA/F-901 – Furnace	8.76	2.41	1.75	17.96	1.18	–	0.18
HULA/FUG – Fugitives	–	–	–	–	8.58	0.01	–
HULA/CT53 – Cooling Tower	–	–	0.15	–	1.29	0.01	–
HULA/WW – Stormwater Drainage	–	–	–	–	0.61	0.01	–
New Equipment Startup/Shutdown	–	–	–	–	1.26	<0.01	–
Equipment Maintenance	–	–	–	–	0.15	–	–
Catalyst Loading	–	–	1.54	–	–	–	–
Non-modified Units (actual to actual)							
WCLA – Waste Water Treatment	–	–	–	–	1.99	–	–
Fugitives from tie-ins at other units	–	–	–	–	1.47	<0.01	–
Emission Increase	8.76	2.41	3.44	17.96	16.53	0.03	0.18
PSD/NNSR Threshold	40/25	40	15	100	25	10	10
Above PSD Threshold?	NO	NO	NO	NO	N/A	NO	NO
Above NNSR Threshold?	NO	N/A	N/A	N/A	NO	N/A	N/A

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The project increases will not exceed PSD or NNSR thresholds. Therefore, PSD and NNSR do not apply to the Clean Diesel Project.

MACT requirements

The facility meets MACT requirement by complying with the Louisiana Refinery MACT Determination through the Louisiana Fugitive Emission Consolidation program for the project fugitives. The proposed project will comply with the appropriate MACT requirements.

Air Modeling Analysis

Emissions of the proposed unit is not expected to contribute or cause an impact on the National Ambient Air Quality Standards (NAAQS) and/or the Louisiana Ambient Air Standards (AAS) beyond industrial property.

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to Section IX of the draft Part 70 permit.

Insignificant Activities

Not applicable.

IV. Regulatory Analysis

The applicability of the appropriate regulations is straightforward and provided in the Facility Specific Requirements Section of the draft permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms conditions and standards are provided in the Facility Specific Requirements Section of the draft permit.

Prevention of Significant Deterioration (PSD) – Part 52

There are no projects included in this permit that will trigger the PSD regulation.

Non-Attainment New Source Review (NNSR) – Part 52

The Clean Diesel Project was reviewed to determine if it was considered a major modification under the 8-hour National Air Quality Standard (NAAQS) regulations for ozone. LAC 33:III.504.M. The proposed increases of VOC and NO_x for the project were compared to the project increase threshold of 25 tons per year, without regard to any project decreases to determine if consideration of the

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net emission increase would be triggered for the project. As shown in the preceding "Summary of BRRF Emission Changes, Tons per year" table, the project increases will not exceed NNSR threshold for VOC and NO_x. Therefore, NNSR does not apply.

New Source Performance Standards (NSPS) – Part 60

Subpart Ja: Proposed Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007

The new furnace, HULA F-901, must comply with NSPS Subpart Ja for fuel gas combustion devices. The furnace will fire only NSPS Ja-quality fuel gas. Subpart Ja, as proposed, will implement NO_x limits from the stack of process heaters and SO₂ limits either from the stack or equivalent sulfur limits in the fuel gas. BRRF will comply with the requirements of Subpart Ja as promulgated.

Subpart GGG: Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries

Fugitive emissions are subject to NSPS Subpart GGG. The refinery complies via the Louisiana Refinery MACT Determination.

Subpart QQQ: Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems

Blowdown from the proposed cooling tower is hard-piped to oil-water separator tanks at the Water Clarification (WCLA) Unit which are subject to the requirements of NSPS Subpart Kb. This alternate means to achieve equivalent emission reductions is approved by EPA.

New Catch basins and sewer vents for the proposed project will receive stormwater runoff only. Therefore, NSPS Subpart QQQ will not be applicable to the secondary wastewater.

National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories – Part 63

Subpart B: Requirements for Control Technology Determination for Major Sources

Facilities subject (or potentially subject) to requirements of Subpart B that implement Section 112(j) of the CAA must submit Part 1 permit applications by May 15, 2002. BRRF submitted a Part 1 permit application on May 15, 2002 for Industrial Commercial Institutional Process Boilers and Heaters (40 CFR 63 Subpart DDDDD).

Subpart DDDDD has been remanded by the courts. As proposed, Combustion MACT required no controls for gas-fired sources. Because the new process heater

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will combust scrubbed fuel gas, BRRF proposes that no additional controls is considered MACT.

Subpart CC: Petroleum Refineries (Refinery MACT I)

Fugitive emissions are subject to NESHAP Subpart CC. The refinery complies via the Louisiana Refinery MACT Determination. All secondary wastewater streams are Group 2 and are not regulated by Subpart CC.

Compliance Assurance Monitoring (CAM) – Part 64

Emission sources at the HULA Unit are not equipped with an add-on control device to achieve compliance with an emission limitation or standard. Therefore, CAM requirements are not applicable to the proposed HULA facility.

State Operating Permit Program (Title V) – Part 70

This permit is an initial permit and the application, submitted under the Louisiana Title V permitting program, contains all the elements as required under the Louisiana Title V regulations.

Control of Emissions of Nitrogen Oxides – Chapter 22

The proposed furnace (HULA/F-901) will be included in the Facility-Wide Averaging Plan to comply with the provisions of this chapter. The Facility-Wide Averaging Plan will be updated.

Comprehensive Toxic Air Pollutant Emission Control Program – Chapter 51

The toxic air pollutant emissions from project fugitives, cooling towers, and secondary wastewater system must be controlled to a degree that constitutes MACT. The refinery complies with the Louisiana Refinery MACT Determination for fugitive emissions. Biweekly sampling for hydrocarbons is conducted at cooling towers. The secondary wastewater system complies with applicable provisions of NESHAP Subpart FF.

V. Permit Shields

A permit shield was not requested.

VI. Periodic Monitoring

No periodic monitoring is required.

VII. Applicability and Exemptions of Selected Subject Items

See Permit.

Hydrofining Unit (HULA)
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East Baton Rouge, East Baton Rouge Parish, Louisiana
Agency Interest Number: 2638
Activity Number: PER20070016
Draft Permit 3060-V0

VIII. Streamlined Requirements

Unit	Program Being Streamlined	Stream Applicability	Overall Most Stringent Program
HULA/FUG	LA Refinery MACT	5% VOTAP (class I and II)	LA Refinery MACT in the manner* agreed to be ExxonMobil in its approved Air Toxic Compliance Plan(April 18, 1996), per Source Notice and Agreement dated October 14, 1996
	LAC 33:III.2122	10% VOC	
	40 CFR 63 Subpart CC - modified HON option	5% VOHAP	
	40 CFR 60 Subpart GGG	10% VOC	

*In lieu of the requirement to monitor connectors (that have been opened or had the seal broken) during the next scheduled monitoring period, connector tightness testing is currently performed prior to equipment startup. Tightness testing may consist of nitrogen pressure test, hydro testing, or high pressure steam. Tightness is verified by instrumentation or observation.

IX. Glossary

Best Available Control Technologies (BACT) - An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this part which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

Carbon Monoxide (CO) - A colorless, odorless gas which is an oxide of carbon.

Grandfathered Status- Those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

Hydrogen Disulfide (H₂S) - A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the action of acids on metallic sulfides, and is an important chemical reagent.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51

Hydrofining Unit (HULA)
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Agency Interest Number: 2638
Activity Number: PER20070016
Draft Permit 3060-V0

(including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

New Source Review (NSR) - A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen.

Nonattainment New Source Review (NNSR) - A New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. Nonattainment NSR is designed to ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

Organic Compound - Any compound of carbon and another element. Examples: Methane (CH₄), Ethane (C₂H₆), Carbon Disulfide (CS₂)

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥ 10 tons per year of any toxic air pollutant; ≥ 25 tons of total toxic air pollutants; and ≥ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM₁₀- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) - A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Hydrofining Unit (HULA)
ExxonMobil Refining and Supply Company
East Baton Rouge, East Baton Rouge Parish, Louisiana
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Activity Number: PER20070016
Draft Permit 3060-V0

Sulfur Dioxide (SO₂) – An oxide of sulfur.

Title V permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) - Any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.